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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 09/383,812 | 08/26/99 | ZELMANOVICH | H INTECH204-IJ |

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| EXAMINER | |
|---|---|
| SERGARO, N | |
| **ART UNIT** | **PAPER NUMBER** |
| 2684 | 10 |

**DATE MAILED:** 05/03/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

| Application No. | Applicant(s) |
|---|---|
| 09/383,812 | Helena Zelmanovich |
| **Examiner** | **Art Unit** |
| Nick Corsaro | 2684 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *Mar 5, 2001*

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *43-79* is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *43-79* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 03/05/2001 have been fully considered but they are not persuasive.

With regard to the applicants arguments, the response will be directed to the original Maloney reference used in prior actions along with new modifying references.

The applicants argument that Maloney does not show calculating using two or more points of location of antenna elements and the phase of the signals received at those elements, is not persuasive. Maloney shows in figure 4 that the distance between the antenna elements are used to derive angle of arrival of signal and thus the mobile angular position from the base. Those calculations are then used to calculate position. The applicants arguments is not persuasive because the applicants claims only cite using the antennas and the phase angles to calculate position. The independent claims do not include a feature that shows how the coordinates of the mobile are calculated, and therefore the claims read on Maloney. Maloney further states that more than two antenna elements could be used. Maloney is modified by Bi to show the mobile can be polled to cause it to send a signal.

The applicants argument that Maloney does not show expressing the phase difference at two or more points of location of antenna elements of the base station and how to determine only from those expressed phase differences the coordinates of the mobile, is not persuasive in that the

applicants claims do not cite determining only from the antenna elements of one base the coordinates of the mobile, or how the one base determines those coordinates. The applicants claims only cite that the phase of the signal at the antenna elements are used and that calculations are made, but does not specify what the calculation is, where the calculation is made, or what information from a base station is used to make the calculation. The claims only say that the location of the elements and the phase angle is used in a calculation, and therefore the claims read on Maloney.

Oros and Fattouche modify Maloney to show a portable reference station can be used to correct calculation for more accuracy. Hollenberg shows that the coordinates can be used to show a particular environment.

Therefore the applicants argued features are not written specifically enough to show a clear difference between the claims and the cited art.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 43-45, 48, 50-52, 57-59, 62, 63, and 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney et al. (4,728,959) in view of Bi et al. (6,163,696).

Consider claim 43, Maloney discloses a method for continuous tracking the location of mobile units (see abstract lines 1-7 and col. 1 lines 5-10). Maloney discloses, providing at least one mobile unit having a wireless transceiver and a unique address; providing at least one stationary base unit having a phase array antenna with three or more antenna elements (see col. 4 lines 60-65, and col. 7 lines 40-55). Maloney discloses periodically the mobiles location is determined when an RF signal is transmitted to the base that corresponds to a protocol or communication message from the mobile, wherein inherently those messages are for call setup or when the mobile is paged/polled for a call or to determine location, so that Maloney inherently discloses the stationary base unit periodically polls said at least one mobile unit to trigger transmission of at least one signal from said mobile unit to said stationary base unit (see col. 14 lines 34-41). Maloney discloses receiving said signal, including an address from said mobile unit at said stationary base unit via said phase array antenna (see col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, and col. 6 lines). Maloney discloses measuring the phase difference of said signal arriving at said three or more antenna elements of said phase array antenna (see col. 7 lines 40-60). Maloney discloses performing calculations by expressing the phase difference at a plurality of points of location of said antenna elements of said stationary base unit relative to at least one other point of location of another antenna element of the same stationary base unit; and determining from said phase difference at said plurality of points of said antenna elements the coordinates of location of at least one mobile unit (see col. 6 lines 65-68, col.7 lines 1-67, and figure 4). Maloney does not specifically disclose the stationary base unit periodically polls said

at least one mobile unit to trigger transmission of at least one signal from said mobile unit to said stationary base unit. Bi teaches the stationary base unit periodically polls said at least one mobile unit to trigger transmission of at least one signal from said mobile unit to said stationary base unit (see col. 10 lines 43-50, col. 10 lines 17-50, and col. 2 lines 45-56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Maloney, and have the stationary base unit periodically poll said at least one mobile unit to trigger transmission of at least one signal from said mobile unit to said stationary base unit, as taught by Bi, thus allowing the base station to find the location when the base receives a location request for a particular mobile.

Consider claim 57, Maloney discloses a method for continuous tracking the location of mobile units (see col. 1 lines 5-10). Maloney discloses providing a plurality of mobile units each having a wireless transceiver and a unique address; providing a plurality of stationary base units, each having a phase array antenna with at least one pair of antenna elements, wherein at least one of the stationary base stations receives an RF signal corresponding to a protocol or communication message so that Maloney inherently discloses at least one stationary base unit of said plurality of stationary base units periodically polls at least one mobile unit of said plurality of mobile units to trigger a signal transmission from said mobile unit to at least one of said plurality of stationary base units (see col. 14 lines 34-42, col. 4 lines 35-40, abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-

67, and figure 4). Maloney discloses receiving said signal including an address from at least one mobile unit at a plurality of stationary base units via a phase array antenna of each said stationary base unit; measuring the phase difference of said signal from a mobile unit of said plurality of mobile units at each respective pair of antenna elements of a phase array antenna of a plurality of stationary base units; performing calculations by expressing the phase difference at a point of location of a first antenna element of a first stationary base unit relative to a point of location of a second antenna element of the same stationary base unit and the phase difference of a point of location of a first antenna element of a second stationary base unit relative to a point of location of a second antenna element of the second stationary base unit, wherein said first and second stationary base units receive signals from the same mobile unit; and determining from said calculations the coordinates of location of said mobile unit (see abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4). Maloney does not specifically disclose at least one stationary base unit of said plurality of stationary base units periodically polls at least one mobile unit. Bi teaches the at least one stationary base unit periodically polls said at least one mobile unit to trigger transmission of at least one signal from said mobile unit to said stationary base unit (see col. 10 lines 43-50, col. 10 lines 17-50, and col. 2 lines 45-56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Maloney, and have the stationary base unit periodically poll said at least one mobile unit to trigger transmission of at least one

signal from said mobile unit to said stationary base unit, as taught by Bi, thus allowing the base station to find the location when the base receives a location request for a particular mobile.

Consider claims 44 and 58, Maloney does not specifically disclose using polar coordinates however polar coordinates or rectangular coordinates could be used depending on the shape of the area and if altitude is to be measured. It would have been obvious to one of ordinary skill in the art to modify the invention of Maloney and use polar coordinates, thus allowing a coordinate systems that is more easily matched to the area being measured.

Consider claims 45 and 59, Maloney discloses transmitting said calculated coordinates of location of said mobile unit from said at least one stationary base unit to a main unit (see abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4).

Consider claims 48, 62, and 63, Maloney discloses a step of adjusting said calculated coordinates of said mobile unit using a location coordinates of said mobile calculated by a different stationary base unit (see abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4).

Consider claims 50 and 65, Maloney discloses said main unit is connected to said at least one stationary base unit (see abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines

40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60).

Consider claims 51, 52, 66, and 67, Maloney discloses the step of performing calculations by expressing the phase difference at a plurality of points of location of said antenna elements of said stationary base unit relative to at least one other point of location of another antenna element of the same stationary base unit and the step of determining from said phase differences the coordinates of location of at least one mobile unit are performed in a stationary base unit and a main unit (see abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4).

4. Claims 46, 47, 49, 53, 60, 61, 64, and 68, are rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney in view of Bi as applied to claims 43 and 57 above, and further in view of Hollenberg et al. (6,091,956).

Consider claims 46, 47, 60, and 61, Maloney discloses the location system as modified by Bi above wherein location information of a mobile can be delivered to an interested party for view on a terminal (see Maloney, col. 6 lines 60-65). Maloney and Bi do not specifically disclose adjusting said calculated coordinates of said mobile unit using an environmental data such as a floor plan. Hollenberg teaches adjusting said calculated coordinates of said mobile unit using an environmental data such as a floor plan (see col. 29 lines 35-45 and abstract lines 1-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made

to modify the invention of Maloney and Bi, and adjust the calculate coordinates using environmental data, as taught by Hollenberg, thus allowing the location of the mobile to be displayed with respect to a particular building or city.

Consider claims 49 and 64, Maloney discloses said transmission of said calculated coordinates wherein it could be inherently a wireless link (see col. 4 lines 40-45, abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4). Maloney and Bi do not specifically disclose wireless. Hollenberg teaches wireless (see abstract lines 1-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Maloney and Bi, and transmit the coordinates wireless, as taught by Hollenberg, thus allowing the location of the mobile to be displayed with respect to a particular building or city.

Consider claims 53 and 68, Maloney discloses that prior systems had a sensor (see col. 1 lines 29-50). Maloney and Bi do not specifically disclose a sensor. Hollenberg teaches a sensor (see col. 5 lines 12-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Maloney and Bi, and have the unit have a sensor, as taught by Hollenberg, thus allowing the location of the mobile to be displayed with respect to a particular building or city.

5. Claims 54-56, and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney in view of Bi as applied to claim 43 above, and further in view of Oros et al. (6,167,275) and Fattouche et al. (6,208,297).

Consider claims 54-56, and 69-71, Maloney discloses the location system as modified by Bi wherein a reference station is used for calibration so that inherently future calculations will be corrected (see Maloney col. 7 lines 65-67 and col. 8 lines 1-2). Maloney and Bi do not specifically disclose calibrating the accuracy of calculation by using a portable reference transceiver and correcting future calculations using the portable reference receiver. Oros teaches correcting future calculations by using a reference transceiver (see col. 6 lines 39-65). Fattouche teaches the reference transceiver could be portable (see col. 5 lines 60-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Maloney and Bi, and use a portable reference transceiver, as taught by Oros and Fattouche, thus allowing accuracy to be improved.

6. Claims 72, and 74-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney et al. (4,728,959) in view of Oros et al. (6,197,275) and Fattouche et al. (6,208,297).

Consider claim 72, Maloney discloses a method for calibrating a system for continuous tracking the location of mobile units (see col. 7 lines 65-67 and col. 8 lines 1-2). Maloney discloses providing at least one stationary base unit with a phase array antenna having antenna elements for receiving signals from a plurality of mobile wireless transceiver units and at least one wireless reference transceiver disposed at a fixed location and wherein the reference

transceiver is a neighboring land station so that it has an inherent unique identifying address; receiving a signal including an address from said wireless reference transceiver at said stationary base unit via a phase array antenna; measuring the phase difference of said signal arriving at a plurality of antenna elements of said phase array antenna; performing calculations by expressing the phase difference at a plurality of points of location of said antenna elements of said stationary base unit relative to at least one other point of location of another antenna element of the same stationary base unit; determining from said phase differences the coordinates of location of said reference transceiver (see col. 7 lines 65-67, col. 8 lines 1-2, abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4). Maloney does not specifically disclose correcting future calculations of the coordinates of the mobile wireless transceiver units by the difference between the calculated coordinates of said reference transceiver and the actual location of said portable reference transceiver, or that the reference transceiver is portable. Oros teaches correcting future calculations of the coordinates of the mobile wireless transceiver units by the difference between the calculated coordinates of said portable reference transceiver and the actual location of said portable reference transceiver (see col. 6 lines 39-65). Fattouche teaches a portable reference transceiver (see col. 5 lines 60-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Maloney, and use a portable reference transceiver to correct

future calculations, as taught by Oros and Fattouche, thus allowing accuracy to be improved and the reference transceivers location to be changed so it can be used with other systems.

Consider claim 74, Maloney does not specifically disclose using polar coordinates, however, polar coordinates or rectangular coordinates could be used depending on the shape of the area and if altitude is to be measured. It would have been obvious to one of ordinary skill in the art to modify the invention of Maloney, Oros, and Fattouche, and use polar coordinates, thus allowing a coordinate systems that is more easily matched to the area being measured.

Consider claim 75, and 77, Maloney discloses transmitting said calculated coordinates of location of said wireless portable reference transceiver from said stationary base station to a main unit (see col. 7 lines 65-67, col. 8 lines 1-2, abstract lines 1-7, col. 1 lines 5-10, col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4).

Consider claim 76, Maloney discloses said transmission of said calculated coordinates is wireless (see col. 4 lines 40-46).

Consider claim 78 and 79, Maloney discloses the step of performing calculations by expressing the phase difference at a plurality of points of location of said antenna elements of said stationary base unit relative to at least one other point of location of another antenna element of the same stationary base unit and the step of determining from said phase differences the coordinates of location of said wireless portable reference transceiver are performed in a stationary base unit (see col. 7 lines 65-67, col. 8 lines 1-2, abstract lines 1-7, col. 1 lines 5-10,

col. 4 lines 60-65, col. 7 lines 40-55, col. 14 lines 34-41, col. 2 lines 10-23, col. 5 lines 4-11, col. 14 lines 10-30, col. 6 lines, col. 7 lines 40-60, col. 6 lines 65-68, col.7 lines 1-67, and figure 4).

7. Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney in view of Oros and Fattouche as applied to claim 72 above, and further in view of Bi et al. (6,163,696).

Consider claim 73, Maloney, Oros, and Fattouche do not specifically disclose periodically polling the mobile. Bi teaches the stationary base unit periodically polls said at least one mobile unit to trigger transmission of at least one signal from said mobile unit to said stationary base unit (see col. 10 lines 43-50, col. 10 lines 17-50, and col. 2 lines 45-56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Maloney, Oros, and Fattouche, and have the stationary base unit periodically poll said at least one mobile unit to trigger transmission of at least one signal from said mobile unit to said stationary base unit, as taught by Bi, thus allowing the base station to find the location when the base receives a location request for a particular mobile.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nick Corsaro whose telephone number is (703)306-5616 . The examiner can normally be reached on from 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Hunter, can be reached on (703) 308-6732 . The fax phone number for the

organization where this application or proceeding is assigned is (703) 308-6306 or (703) 308-6296 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Nick Corsaro

DANIEL HUNTER
SUPERVISORY PATENT EXAMINER
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